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GLOBAL MINISTERIAL ENVIRONMENT FORUM

Major environmental challenges in the new century
Private sector and environment – preparing for the twenty-first century
Civil society – responsibility and role vis-à-vis environment in the globalized world

Discussion papers presented by the Executive Director

Summary

The present document contains background papers intended to stimulate discussions and to identify questions of concern to Governments which will be addressed by ministers and heads of delegation during the Forum. The document relates to the following items on the provisional agenda: 4 (Major environmental challenges in the new century), 5 (Private sector and the environment – preparing for the twenty-fist century), and 6 (Civil society -- responsibility and role vis-à-vis the environment in the globalized world). The document has not been formally edited.

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INTRODUCTION

The beginning of a new century affords a significant opportunity to reflect on the future path of global environmental policy. In this new century, dominated by new technology and new opportunities, it is also worth reflecting that the future is increasingly a matter of human choice.

The recognition of the global nature of environmental challenges in Stockholm, in 1972, and the coupling of environmental issues to those of development in Rio de Janeiro twenty years later, has led to significant progress to reverse environmental degradation. However, the facts and figures of UNEP's *Global Environment Outlook 2000* state clearly that the challenges of sustainability still overwhelm the adequacy of our responses.

The message as highlighted in the United Nations Secretary-General, Mr. Kofi Annan's Report: *"We the peoples: the role of the United Nations in the twenty-first century"* is unambiguous: we must do more and we must do it better.

Neither the quantity or quality of the progress achieved to date allows us to be complacent about environmental issues. Emphasis should be given to stimulating practical answers to the environmental challenges before us. This includes the overriding objective to reduce poverty.

This view is shared by a vast majority of people. For example, two thirds of the 57,000 adults from sixty countries who responded to the United Nations Millenium Survey said their governments had not done enough to protect the environment.

How can we do better? Is the slow progress due to lack of implementing these instruments? Are we at a turning point of socio-economic development that requires foresight and fundamental changes, as our ancestors required in the early days of industrialization?

Are the environmental instruments developed during the last decade sufficient to build our common future to achieve a sustainable development in all parts of the world?

These questions are being posed in the context of a world that has changed enormously since the early days of global environmental policy, and is likely to continue to do so with undiminished pace.

This transformation process is often described by catchwords such as "globalization" and "the post-industrial era" or "the information and knowledge age". Whatever the phrase, this transformation may ultimately be as consequential as the two previous waves in human socio-economic development: from hunter-gatherer to agricultural societies, and then from the agricultural to industrial societies.

We should also remember that globalization is not a new phenomenon but one that has been occurring since homo sapiens populated the

continents. The process gathered momentum during the 15th century with the "voyages of discovery" and the rise of international trade in products such as silk spices and cotton.

Today's connotation of globalization is still trade-driven, though soon we may only speak of e-commerce. In the most developed economies, services are increasingly displacing manufacturing as a source of wealth, while information and human intelligence embodied within increasingly smart machines have become driving market forces as mental labour replaces physical labour.

New and inexpensive technology makes it easier to move information across national borders. Rapid communications by radio, television, fax and e-mail combined with the steadily declining cost of long-distance transportation erodes the boundaries of established cultural communities. At its best, this process has the potential to build understanding, tolerance and mutual respect across cultures.

Consider also that foreign exchange flows have soared from US$15 billion a day in 1973 to more than US$ 1.5 trillion a day in 1999. Investments into the world's equity markets now amount to about US$ 19 trillion. In many countries, official working hours have been reduced, international tourism has soared, and on average people are living longer. At the same time, the social divide within and among countries continues to increase.

We are now at the threshold of the first truly global revolution – one that is fundamentally different from the Industrial Revolution that began two centuries ago and gradually spread throughout the globe, thus allowing people and societies more time to adjust. The Information Revolution, by contrast, is spreading simultaneously on all continents - albeit with differing intensities and pace, adding to social tensions and creating a "digital divide". In so doing, this rapid transition is raising questions about the desirability of this path among those who are finding it difficult to adjust once the globalization process conflicts with their cultural and spiritual values.

How can environmental values help bridge the cultural, social and economic divides?

Globalization offers many people an opportunity to improve the quality of their lives. This opportunity, however, can be grasped only if one is educated, has highly developed social skills, and has access to well functioning labour- and/or capital markets. Many people, however, still remain excluded, including the populations of many developing countries and almost all of Africa.

Although economically, the world is becoming a "global village", there is still a long way to go before we can speak of a fully global economy. Socio-economically, however, we still seem to live in even more than one world.

This cultural, social and economic divide must be bridged. How can environmental values be made one of the central pillars of this bridge?

The environmental risks loom ever larger as industrialization and urbanization take hold in developing countries and the lifestyles and modes of consumption of industrialized countries diffuse worldwide.

Gradual improvements to the environment are increasingly regarded as insufficient to meet the commitments made in Rio de Janeiro eight years ago. More fundamental change is required, but it may take decades to bring about more fundamental change in energy infrastructures, urban settlements, transport systems, consumer technologies, and particularly in lifestyles.

Do we risk running out of time?

There *are,* however, signs of hope. Environmental awareness is constantly rising, particularly among young people but also in the private sector. International discussions on the future of the global economy are centered, among other things, around the role that multilateral environmental agreements could play in shaping the global framework for the economy. Are we prepared to grasp this opportunity and shoulder the responsibility?

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Linked to the process of globalization is the discussion over its potential to diminish the role of the nation-state and to shift "power" into the hands of other stakeholders. The private sector has become a dominant feature in today's world.

Civil society plays a major role in raising environmental awareness around the globe. In many cases women have taken the lead. Thirty years ago, these groups put the environment on the political agenda, both nationally and internationally. They continue to do as evidenced by the World Trade Organization meeting in Seattle. The fact that civil society is increasingly networked through the Internet facilitates the coordination of their views and expectations towards national, regional, and global environmental policies. They have become a serious partner in negotiations of multilateral environmental agreements.

Partnerships with both the private sector and civil society are a powerful tool to advance the goal of sustainable development. This first Global Ministerial Environment Forum is thus an important opportunity to lay the foundation for partnerships between government, the private sector, and major civil society groups, including the media.

The following pages contain background information on the three major themes for the Forum:

- *Major environmental challenges in the new century;*
- *Private sector and the environment – preparing for the 21st century;*
- *Civil society – responsibility and role towards the environment in the globalised world.*

This background information is not meant to exhaustively address these themes, but rather to initiate and support the exchange of views and dialogue among the participants to ministerial discussions at the Forum.

Reference Note: Unless otherwise indicated, the main reference for facts and figures in this document is *Global Environment Outlook 2000*, UNEP, 1999.

Agenda Item 4: Environmental Challenges in the New Century

At the beginning of the 21st Century, there is no doubt that the natural systems on which all life depends are severely impacted by human activity. During the past century, these systems have borne the stresses imposed by an eighteen-fold increase in world economic output and fourfold increase in human population. The increasing demands and activities of growing economies combined with a world population of over six billion are exceeding the productive and regenerative capacity of these systems (see Box 1 and Box 2).

If we continue with "business as usual", the predictions are indeed serious. During the next 50 years, the population is predicted to increase by 50% to 9 billion. The extra 3 billion people who must be housed, fed, clothed and educated, and who will most live in already overcrowded cities of developing countries, will substantially increase the threat to environmental, economic and social sustainability at the local, regional and global scale (see Figure 1 next page).

What will the 21st Century hold for the environment?

UNEP's Global Environment Outlook 2000 (GEO-2000) identified three categories of priority:

- *Unforeseen events and scientific discoveries - Nature is still full of surprises;*
- *Sudden, unexpected transformation of old issues;*
- *Well-known issues to which the present response is inadequate.*

Priority issues of today will continue to rank high on the agenda of tomorrow. The complexity and magnitude of problems such as climate change, freshwater scarcity and pollution, deforestation, desertification, loss of biodiversity, and chemical pollution will not allow easy and quick solutions.

BOX 1: Environmental Challenges

- Since 1950, **global emissions of CO_2** from human activity **have risen almost 400%** and are still rising;
- About one-third of the world's population is currently living under **moderate or severe water stress** and this proportion is still increasing;
- Over **one-half of all wetlands** have been altered or destroyed;
- 25% of the earth's surface is already affected by **land degradation**;
- Since 1960, more than **one-fifth of the world's tropical forests** has been lost;
- More than **one-half of the world's coral reefs** are potentially threatened by human activities;
- Almost **70% of marine fisheries** are either fully exploited or overfished;
- In 1996, **25% of the world's mammal species and 11% of the bird species** were at significant risk of total extinction.

BOX 2: Social and Economic Repercussions

- Unsafe water and poor sanitation cause an estimated 80% of all diseases in the developing world; the annual death toll exceeds 5 million, of which more than **one-half are children.**
- Worldwide, more than **one billion** urban residents are exposed to health-threatening levels of pollution; in eleven East Asian cities alone, air pollution causes more than 50,000 premature deaths and 400,000 new cases of chronic bronchitis per year.
- In 1998, an estimated 25 million "environmental refugees" emerged as a result of weather-related disasters.
- Global damage from natural disasters was estimated at **US$120 billion** for the two years 1997 and 1998.
- Desertification and drought affect more than 900 million people in 100 countries.

Additional new challenges to the environment may still be lying in wait, which explode once the carrying capacity of the receiving ecosystem is exceeded.

Others appear on the horizon, such as nutrient overload. Excess nitrogen from human uses in agriculture, energy production, and transport are beginning to affect the nitrogen cycles with a raft of effects from diminished soil fertility to toxic algael blooms.

The driving forces will remain:

- *The size of the human population;*
- *The per capita consumption of resources;*
- *The technologies used to produce and consume these resources.*

The projected population increase of 3 billion by 2050 is self-explanatory. The fact that urban population is projected to double to more than 5 billion people in only 25 years and that 90 per cent of this increase is expected to occur in developing countries should start causing us nightmares now. The situation will be aggravated by the consumption intensive Western life-style conquering the rest of the world.

The challenge is unchanged. Would a global commitment to a tenfold reduction in resource consumption in industrialised countries, and a fourfold reduction in developing countries, be a means to make progress in this regard?

Will we be able to decouple economic growth from resource consumption?

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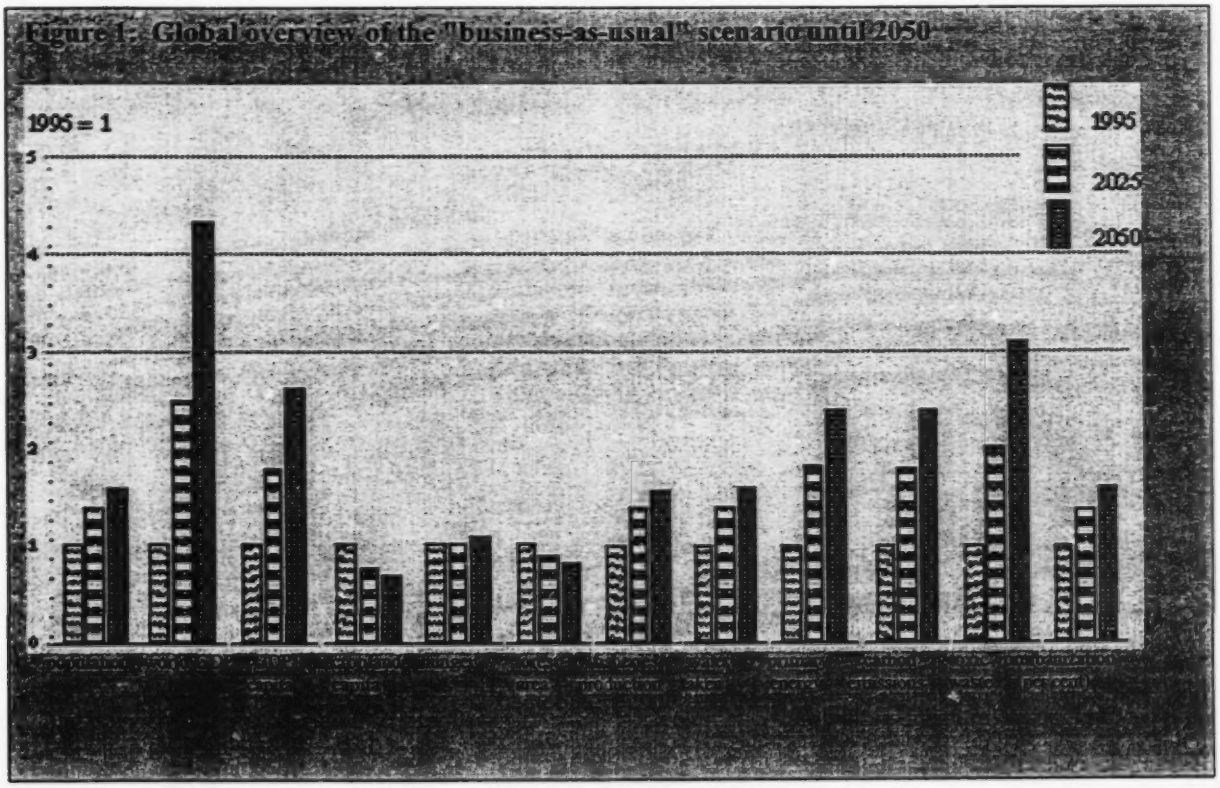
Figure 1: Global overview of the "business-as-usual" scenario until 2050



New developments in the third of the three driving forces, the technology sector, hold out hopes for change to the better.

Cleaner production technologies, especially in the energy, transport and other industrial sectors, have been proven to be both economically and environmentally profitable. For example,

Thailand's management plan reduced energy demand between 1993-1997, reduced carbon dioxide emissions, and continues to save consumers US$100 million annually.

Many degraded ecosystems such as rivers and lakes have been successfully cleaned up, for example the River Thames in the United Kingdom. Once severely polluted with sewage and urban and industrial wastes, the Thames is now the cleanest metropolitan river in Europe, thanks to intense clean-up efforts and strict environmental laws enforced since the 1960s.

Numerous innovative technology developments are in the pipeline that might help decrease our destructive impact on the environment considerably, such as:

- *Intelligent vehicle highway systems;*
- *120 mile per gallon (litres) personal vehicles;*
- *Manufacturing for durability, reclamation, re-manufacturing and recycling;*
- *Earthquake prevention;*
- *Weather modification.*

Box 3: Possible benefits of new IT:

- more telecommuting reduces transport – one minute travelling uses same energy as 20 minutes of computer use and office space.
- Business-to-business e-commerce creates efficiencies in inventory, thus reducing the need for physical structures;
- Business-to-consumer e-commerce reduces retail space – OECD estimates 12.5 per cent reduction saving US$5 billion in annual energy costs.
- Email replaces paper-based mail reducing the need for paper.
- Intelligent vehicle/highway systems reduce energy use

Twenty-five years from now information technologies (IT) will probably have penetrated every aspect of human activity. Provided the rapid diffusion of IT around the globe continues, IT might be a means to help bridge the divide between North and South, allowing, to some degree, a process of technological "catch up" if not "leap-frogging". IT opens up the possibility of profound transformations in business and in the daily life of human beings.

The state of the global environment described in GEO2000 requires more global solidarity with regard to the environmental challenges ahead of us.

The potential of the new technologies to decrease the impact on the environment is huge. However, the question of how they can be diffused rapidly, and to developing countries, is not yet solved and needs to remain high on the agenda.

Although new technologies offer good prospects for environmental improvement, we cannot afford to be lax about other issues.

Further effort is needed to improve the enforcement of multilateral environmental agreements (MEAs) – an improvement that is urgently required. Disregarding formerly accepted international obligations requires an international response. Would reports on environmental impacts of MEAs be more effective if they are prepared by the United Nations Environment Programme in cooperation with representatives from all the regions other than the region to which the reviewed country belongs? Appropriately developed, such reports might become a useful tool in our efforts to better coordinate MEAs. Would we even want to think of sanctions and develop a kind of penal code to help achieve our objectives of MEAs?

Are existing national environmental reporting requirements sufficient?

Are sanctions appropriate?

In this context, more thought should also be given to how a global environmental community living in a globalizing economy could apply economic instruments more efficiently, such as tradable emission permits, and taxes on emissions and products. We ought to take advantage of the preventive nature of the polluter pays principle and develop the necessary tools to apply it efficiently.

Is there a need for harmonization of accounting practices for the estimation of environmental costs?

The following two sections address the need for better conservation of biodiversity and the recent increase in environmental disasters. Both issues warrant specific attention – biodiversity because of its life-sustaining functions and environmental disasters because of their serious threat to life-sustaining ecosystems.

Biodiversity, Protecting the Global Commons

As we achieve our environmental goals, we must ensure that future generations can sustain their lives on this planet. A fundamental challenge is to secure the basis for this sustainability. Human survival, wellbeing, and social and economic development are dependent on the functioning and productivity of the earth's physical and biological systems. These systems – the global commons - provide goods and services in the forms of food, water and raw materials, purification of air and water, flood control and the maintenance of biodiversity. The annual value of these services has been conservatively estimated at over US$36 trillion in 1998 – about the same as the US$39 trillion estimated for Gross World Product in 1998.

Harvesting the goods that ecosystems produce via agriculture, forestry and fishing is the basis for many national economies and provides every two jobs worldwide and seven out of ten in subsaharan Africa, East Asia and the Pacific. In a quarter of the world's nations, crops, timber and fish contribute more to the economy than industrial goods. As importantly, the earth's ecosystems provide recreation, aesthetic enjoyment, and a basis for many intrinsic cultural and spiritual values.

All components of ecosystems are closely interlinked and function as a single entity. Humans are not just part of and users of nature, they are also *trustees* of this natural capital. This idea implies a high degree of responsibility for their use and damage - a responsibility to be borne not only by people themselves, but also by governments, particular when nations share transboundary ecosystems.

As seen in Box 1, the scale of human activities is the primary source of pressures on ecosystems today. These pressures are altering natural landscapes, degrading ecosystems and reducing biological diversity. The "tragedy of the commons" is the absence of a rational reason to restrain harvests that are freely available to others, (often applied to potentially renewable resources such as fisheries) and is one root cause of these pressures.

Our global commons are frequently taken for granted since they do not have any perceived owners. They are being heavily impacted since there are few incentives to manage and use them sustainably. Major threats to the global commons are posed by increasing levels of atmospheric carbon dioxide, massive use of fertilizers, and overexploitation of marine fisheries.

Do we need to improve and further develop the international legal regime for oceans, sea and the air to better sustain our future?

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At the same tim , there are still many gaps in our knowledge of how ecosystems function, which evokes the concept of "the precautionary principle" before resources are used. For example, only 2 million of the estimated 7-20 million species on the Earth have been identified, and yet the expected loss of species over the next 25 years is predicted to be between 140,000 and 5 million species. As the result of human activities, the lowest current estimated rate of species extinction is approximately 1000 times the natural rate and all regions of the wold are contributing to this loss. (see Box 4).

	Mammals	Birds	Reptiles	Amphibians	Fishes	Total
Latin America and the Caribbean	263	353	76	27	103	822
North America	94	84	35	27	190	430
West Asia	23	22	8	0	5	58
Africa	289	207	48	17	127	688
Europe and Central Asia	89	53	29	12	104	287
Asia and the Pacific	515	521	104	47	216	1403

Box 4 Number of globally threatened vertebrate species by region.

The WWF 1999 Living Planet Index suggests a substantial decline in the world's natural wealth since 1970. The increasing scale of

the threats to the global commons requires coordinated international action, since they cannot be reduced by the individual actions of nations. International scientific and political cooperation is thus needed to further understand the complex web of life, and how that web can sustain human life in the 21st century. In addition, the links between global environmental issues lend themselves to a movement by the international community beyond negotiating separate agreements for each issue.

This would create more opportunities for both trade-offs and synergies, thereby generating solutions through concerted global action. Furthermore, the common global elements of biodiversity resources cannot readily be separated from the ecosystems where they occur. To address this and other issues, UNDP, UNEP, the World Bank and the World Resources Institute are planning to conduct the Millennium Assessment of Global Ecosystems, subject to the support of governments and other stakeholders.

Environmental Disasters

Economic and developmental activities interact with components of ecosystems and are the likely cause of the changing patterns of their functioning, creating the ground for severe natural phenomena and environmental disasters.

The world's societies and environment are increasingly suffering from the effects of natural disasters. A disaster usually results from the combination of a vulnerable environment and a hazard such as floods, tropical storms, earthquakes, landslides, wild fires, volcanic eruptions, and tsunamis. They can cause the loss of life, property and livelihoods (see Box 5).

Human behaviour is the overwhelming cause of increasing vulnerability to natural hazards. This global development is directly linked to a number of trends, such as increasing poverty, population growth and greater density, unwise land use and inadequately planned urbanization, environmental degradation and disturbance of formerly stable ecosystems, and climate change. Combinations of factors make specific areas even more susceptible. For instance, the population boom in urban and coastal areas has compounded factors such as high population concentration, vulnerable infrastructure, and settlements built in floodplains or areas prone to landslides. Misguided planning has also increased the vulnerability to disasters by siting potentially-hazardous facilities - such as nuclear power plants, chemical factories and major dams - in earthquake zones and densely-populated areas.

The number of major catastrophic events over the past ten years has increased three-fold when compared to the 1960's, while the rate of economic losses associated with them has increased by a

factor of almost nine during the same period. Overall, the poorest, most exposed communities are the most likely to suffer from major disasters and thus, less developed countries proportionally incur a much higher cost to natural disasters.

Following the 1997-1998 El Niño event, the economic losses of the United States were estimated at US$ 1.96 billion which represents 0.03% of the GDP. Ecuador suffered equivalent dollar losses, but they represent 11.4% of its GDP. Least developed countries with limited economic diversity must not only rely more heavily on external relief following a disaster, but the economy takes longer to recover. In developed economies, governments are able to deal with natural disasters using a limited amount of external support and the economic costs are absorbed, to an extent, by a more diversified economy.

BOX 5: Natural disasters in 1999

- A 6.0 magnitude earthquake killed 1,185 people, left 159,000 homeless in Armenia, Colombia, in January.
- Thousands of avalanches came down in the tourist areas of the Austrian and Swiss Alps, killing more than 100 people in February and March.
- Earthquakes in August and November claimed more than 20,000 lives in Turkey.
- An earthquake hit Taichung, Taiwan on 20 September, killing 2,400 people and causing over US$ 11,000 billion economic losses.
- In October, rains in southern Mexico killed over 400 people and drove some 300,000 others from their homes. The floods were the worst in 40 years.
- Cyclone 05 B, which raged in the Bay of Bengal at the end of October, killed as many as 30,000 in Orissa, India.
- A 7.1 magnitude earthquake struck off the coast of Vanuatu on November 27. The earthquake caused a giant tidal wave that killed 12 people, injured scores and destroyed the homes of over 1,000 people.
- The death toll in Venezuela probably exceeded 30,000 as a result of debris avalanches and mudslides following eleven days of continuous rainfall in December.
- Storms generated losses amounting to US$5bn - US$ 6bn in Germany, Austria, France, Spain and Switzerland at the end of December and caused over a 100 fatalities.

The sheer scope of the socio-economic impacts of natural disasters has brought about a shift in the political approach to dealing with the concept of risk in modern societies. As a result, the international community has recognised the need to shift towards pro-active remedies.

The United Nations Secretary General, Kofi Annan, in his opening remarks to the International Decade for Natural Disaster Reduction Programme Forum in July 1999 affirmed: "We must, above all, shift from a culture of reaction to a culture of prevention. The humanitarian community does a remarkable job in responding to disasters. But the most important task in the medium and long term is to strengthen and broaden programmes, which reduce the number and cost of disasters in the first place. Prevention is not only more humane than the cure, it is also much cheaper."

The UN has already established a global platform, the International Strategy for Disaster Reduction (ISDR), to enable all communities to withstand the effects of natural disasters and to proceed from the protection against hazards to the management of risk through the integration of risk prevention into sustainable

development. The continuing challenge is to find means by which collective participation and multidisciplinary assessment relevant to risk and environmental management becomes a reality.

The increasing frequency and intensity of natural and man-made disasters clearly demonstrate the need for enhanced disaster preparedness at both the national and international levels. The ability to manage crises is critically dependent on the availability of information linked in national networks, and a rapid, coordinated response. How can global communications technology be used as a powerful tool to support information needs for the management of emergencies, particularly through the establishment of a clearing-house mechanism?

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Agenda Item 5: The Private Sector and the Environment: Preparing for the 21st Century

The private sector has become a dominant feature in today's globalizing world because of trade liberalization, cross border investments, and flows of capital, as well as spectacular advances in the field of information technology. Other technology developments underway, particularly in the field of biotechnology, bioengineering, energy, and materials, will also fundamentally shape an increasingly technological future.

To illustrate, consider that the turnover of capital of the three largest global car manufacturers exceeds the GNP of the whole African continent.

Box 1: Globalization: Facts and Figures

- Daily exchange trading:
  - US $1,900 million in 1900
  - $20 billion per day in 1992
  - $1.5 trillion per day in 1998
- Net private capital flows to low and middle income countries:
  - a few million in 1950
  - $243 billion in 1996 including 176 to middle income countries
    - 60 to China and India
    - 7 to low income countries
- The turnover of the 10 largest companies exceeds the combined GDP of the 100 smallest countries.
- An estimated 300,000 additional persons connect to the Internet every day.

Business and industry are the sources of most technology innovation and drive the process of globalization, which in turn is leading to the restructuring of many industry sectors. For example, a number of chemical companies are now reorienting their business from chemistry to biology to become 'life-science' companies. Companies offering Internet services are becoming more important than telecommunications operators.

The oil industry is increasingly entering the renewable energy business while in the financial sector, the globalization process has been by far more rapid and is nearly complete making financial capital an internationally mobile factor of production. Mergers, acquisitions, and cross border relationships have changed the face of the financial services industry globally while capital markets provide an alternative to conventional bank loans. Foreign Direct Investment (FDI) represents an increasing share of total capital flow between countries; by the mid 1990s FDI to developing countries was five times larger than Official Development Assistance (ODA). Privatization of many public services, such as water, energy, and transport in all parts of the world has also contributed to the increasing importance of the private sector.

Globalization has generated growth and structural efficiencies, making it possible for the resulting higher incomes to be invested in environmental protection, social welfare programmes, and development projects. Multinational enterprises often apply the environmental and social standards of the country in which they are headquartered in affiliated companies abroad. The management practices and technological characteristics of multinational

enterprises have, in many cases, influenced the practices and standards of their business partners. In that respect, the development and use of ISO 14001 standards have led to improved environmental performance within companies, including many small and medium sized enterprises (SMEs).

But there are many cases where countries with low environmental regulatory standards, less trained people, and less stringent enforcement of law are considered to be an excellent market for polluting technologies and production processes. These practices often not only degrade natural resources, but also affect the health of people – particularly the poorest. Hazardous wastes continue to be exported illegally – again, preferably to developing countries lacking appropriate treatment technologies – or are being dumped in the open sea.

Just-in-time production and delivery methods prove to be more cost-effective than traditional storage practices; but only at high infrastructure and environmental cost borne by the society at large.

Around the globe, the sheer amount of urban waste remains a paramount problem despite all current efforts in waste reduction. A number of public/private partnerships have been developed to address this issue, such as the Duales system in Germany, the Packaging covenant in the Netherlands, and the Ecoemballages system in France. Countries have promoted the extended producer responsibility aiming at transferring the costs of waste management to those who are conceiving the products that are a source of waste.

Box 2: The Packaging Industry and the Environment

Packaging:

- represent between 25% and 50% of urban wastes in developing countries and is a main source of litter;
- has lead to several billions in dollars of collection and disposal costs yearly that the consumer and local authorities have to bear;
- contributes significantly to the consumption of natural resources – for example, around 50% of total paper consumption in OECD countries is used for packaging and wrapping;
- represents on average 20% of the final cost of products for domestic consumption.

Results of the combination between financial incentive legislation and voluntary agreements have contributed to reductions in volume and weight of packages. For example, in New Zealand, the packaging industry has reduced packaging weight by more than 20% in the past 12 years. In Germany, more than 5.6 million tons of packaging were recycled in 1998. In France, the plastic yogurt pot or glass bottle waste was decreased by about 50%.

Global companies occupy a critical phase in present development. Their decisions heavily influence the economic prospects of people, nations and, to a great extent, the future of the ecosystems of the planet. Increasingly questions are being raised on their role and responsibilities. The debate revolves around a number of inter-linked issues, including:

- *Corporate 'purpose' and objectives - e.g., is shareholder value the goal of a company or simply the means to achieve a higher purpose?*
- *Corporate governance and accountability - e.g., what are the responsibilities and obligations of companies to societies?*
- *Incentives - e.g., how can corporate objectives as well as*

environmental and societal objectives be more closely aligned?

- *National and global governance - e.g., how can national governments and global institutions unleash the power of companies to achieve societal and environmental goals?*

In response, business is moving corporate responsibility to the forefront of its agenda.

The United Nations Secretary-General requests that the rights of global companies to operate "globally" must be accompanied by greater responsibilities – through the concept and practice of global corporate citizenship.

Innovative approaches

The private sector, through innovative approaches, is the driving force of technological change. From the environmental point of view, developments in new technologies are of critical importance to greatly diminish the environmental degradation caused by all sectors of the economy. These technologies include:

Information technology

Information technology has already produced radical changes in world society, but we have barely begun to feel the transformational consequences of the newest developments. From an environmental point of view, information technology can lead to a "dematerialization" of many aspects of our society. More broadly, this revolution may lead to an efficiency revolution of the traditional physical distribution channels using electronic commerce between businesses and the digital delivery of goods and services to customers. These goods include software programmes, newspapers, travel tickets, music, and interactive retail ordering of tangible goods. Thus, it can contribute to the *Factor 10* improvement of resource productivity that experts have said is necessary to achieve sustainable development (see box 3).

Box 3: Environmental and social impacts of e-entertainment

Music, video, multimedia stored in digital form on the telecom network and provided in real-time to the end-user through the Internet will:

- dematerialize the CD and tape industry
- save energy and resources involved in packaging, transport, and sales
- fundamentally change the structure of the entertainment industry
- render difficult the geographical identification of the entertainment providers and purchasers
- possibly result in an impact on the ability of national governments to tax such transactions
- reduce restrictions that governments place on content or sales.

Information technology will also be of great assistance to obtain a better understanding of the world's ecosystems and thus will support environmentally sound decision-making.

Biotechnology and genetics engineering

The possibilities of modern biotechnology are virtually endless. It will transform the agricultural, nutrition and health sectors. A growing number of commentators argue that modern

biotechnology will even rewrite the way in which we define ourselves as human beings.

Biotechnology promises to make a significant contribution to meet the growing consumption needs of the global population and other challenges. It has the potential to enable the development of better health care, enhanced food security, and improved supplies of better quality water. New biotechnology may also provide more efficient industrial development processes for transforming raw materials, support for sustainable methods of afforestation and reforestation, better sewage treatment, improved decontamination of land and soil, and detoxification of hazardous wastes.

Biotechnology is one of many tools that can play an important role to support the rehabilitation of degraded ecosystems and landscapes. New biotechnologies also offer opportunities for global partnerships between countries rich in biological resources (including genetic resources) and those that have developed the technological expertise to transform biological resources, hopefully to serve the needs of sustainable development. In this regard the question of benefit-sharing is being discussed.

Developments in this sector, however, are also raising a number of questions related to human values; they might irreversibly change ecological, economic and social dynamics. Increasingly numerous voices highlight the still poorly understood risks associated with biotechnologies. We know too little about the ecological interactions among the multitude of micro-organisms and higher organisms involved. It remains uncertain, in the long run, how the environment will react to the release of genetically modified organisms. Ecological damage might occur and become known only after decades. The Biosafety Protocol of the Convention on Biological Diversity is an initial step to meet these concerns.

Energy technology and mobility

History has seen successive waves of energy sources powering development: first wood and water, then coal, later petroleum and natural gas, and, to a significant degree, nuclear power. The issues of climate change and air pollution have initially driven energy efficiency in all sectors, in particular manufacturing, construction and transportation. But this is by far not enough. In the next 25 years, increases in carbon dioxide emissions from highly populated countries will be large – almost three-quarters of the total increase for the world. Several rapidly growing economies continue to rely heavily on coal. Sulphur emissions and related acidification impacts also constitute a major environmental threat.

The global energy infrastructure must move towards a much greater use of renewable energy. Privatization and competitiveness are changing the electricity business in particular, bringing new opportunities for small-scale generators and distributed systems, but in some ways making it harder for renewable energy technologies to compete.

Closely associated with energy use is transportation, another area where technology innovation is underway but certainly not enough to offset the projected increase in air pollution related to road and air transport. Road transport is projected to increase from about 12,500 billion kilometers in 2000 to 26,000 billion by 2030.

The tourism industry, one of the fastest-growing industries globally, is highly energy intensive. With the inception of mass long distance air travel, this industry has become one of the important consumers in the energy market. Since 1970, air transport volumes have consistently grown about twice as fast as the economy as a whole – at high environmental cost. Taxing of aviation fuel might be a means to further the development of more energy efficient planes.

Market Opportunities

With regard to sustainable development, the new technologies offer significant promise. Solutions to the current and future economic, social and environmental problems will have to be found by making the most efficient use of them globally.

Box 4: Sustainable Mobility

Technical progress towards new engines/new fuels for vehicles, as well as the use of IT and intelligent transport systems, will address the pressing environmental concerns, such as CO_2 emissions, local pollutants and noise emissions. All vehicle manufacturers are currently developing at least one of the following:

- *Fuel cell technology (electricity needed for electrolysis could either come from fossil fuel or renewable energy forms, such as wind and solar);*
- *Hybrid vehicles;*
- *Natural gas vehicles;*
- *Biofuel vehicles;*
- *More fuel efficient gasoline and diesel engine vehicles, equipped with better filters.*

These efforts are supported by new vehicle designs and the use of lighter materials such as aluminium, magnesium and plastics, as well as natural fibres and other renewable raw materials and recycled materials.

Furthermore, increasing research on the use of IT and telematics may help to reduce fuel consumption and, at the same time, address congestion problems.

A major difficulty for environmental policy is how to promote sustainable technologies within a market economy that selects products and processes not on the basis of environmental criteria, but on the basis of profitability. Several options out of this dilema are being discussed:

- *Promotion of a life-cycle economy to cover products from cradle-to-cradle;*
- *The stricter application of the polluter pays principle through liability and compensation regimes, both nationally and within the globalized economy, and in the context of multilateral environmental agreements;*
- *International procurement policies, either through the direct support of research and development, or through subsidizing the use or development of environmentally beneficial technologies within private firms; and*

- *Subsidies or aid programmes, such as tax credits or cooperative research projects between industry and public research institutes.*

Given the state of global environmental degradation and the prospects highlighted in the background paper on the environmental challenges, an essential goal of these policies should be to encourage the rapid international diffusion of environmentally beneficial technologies, particularly to developing countries. This subject has been on the international environment agenda since the Earth Summit in Rio de Janeiro with little progress though, from an environmental perspective, it deserves a high priority.

Waking the Financial Markets

In principle, the financial services sector has the means to assist governments to re-orient markets towards sustainable development and to direct financial resources towards projects or companies that have demonstrated good environmental performance. Financial markets are "greening", but much too slowly. Some major financial corporations have begun to internalize the fact that environmental matters are money matters. In this regard, the banking and insurance industry initiatives of UNEP serve as catalysts for the exchange of experience and ideas.

However, a great number of bankers, insurers and pension funds still seem reluctant to acknowledge and respond to environmental risks as potential financial risks. They believe that environmental and social concerns are irrelevant - or even detrimental - to generating good investment performance. The lack of databases, measurement tools, commonly accepted standards, and benchmarks has been an obstacle.

However, today a number of environmental and social rating providers are offering rating systems based on eco-efficiency and other indicators. Pilot projects of a number of investment banks offering environmentally-screened funds in the market have achieved competitive, three year track records in profitability. Thus, the beginnings of financial environmentalism are in sight.

In view of the above, all those responsible for the environment might want to reflect on what the chances a re-orientation of the financial market offer and the means to realize them.

Challenges at the start of the 21st century:

- Decouple economic growth from resource use, in particular energy use;
- Give "teeth" to the polluter pays principle;
- Create the global regulatory framework to guide the globalizing economy towards sustainability and adopt appropriate international measures;
- Ensure that trade measures and environmental agreements will be mutually supportive, contributing to sustainability;
- Re-orient research and technology development efforts to ensure that technological innovation will contribute to achieving sustainability;
- Strengthen the 'Global Reporting Initiative', aiming at developing benchmarking between companies and sectors on their environmental and social performance, and ensuring adequate verification of environmental reports of the private sector;
- Develop the public/private partnerships, in co-operation with the civil society;

The crucial question is how to equate the environmental risk of an economic activity of a third party with the financial risk of the investor. The importance of legislation to control pollution by requiring industrial remediation or imposing fines is broadly recognized. But beyond the command and control aspects of legislation there is a less acknowledged force: the power of liability. In accordance with the polluter pays principle, present laws hold liable the entity harming the environment but not the financiers to that activity. How, and by what means, might this be changed?

Another approach to introduce the assessment of environmental risk into financial risk assessment would be to make environmental reporting mandatory, as has recently been done with pension funds in the United Kingdom. New regulations coming into force in July 2000 require pension funds to state their policy on the extent to which social, environmental or ethical considerations are taken into account in the selection, retention and realization of investments.

The Sum is Greater than the Parts

Over the last twenty-five years, there has been a gradual conceptual shift in the way the private sector approaches society's environmental concerns. From the reactive, end-of-pipe compliance approach of the 1970s, to a more public relations approach of the eighties, the private sector is increasingly orientated toward the preventive, cleaner production, eco-efficiency approach of the 1990s. A number of regulatory measures have been enacted to promote this shift to a "cradle-to cradle" or "life-cycle" economy. Additional economic instruments and institutional approaches have been adopted - and are still needed - to re-orient markets towards this economy and sustainability. Development of comprehensive liability and compensation regimes could be a key strategy to achieve environmental and sustainable development goals.

All of these challenges will only be met in close global partnership between the private sector, governments of the North and the South, and civil society and when all of the partners fully realise that progress will only be made by joining forces.

Agenda Item 6:Civil Society - Responsibility and Role Towards the Environment in the Globalized World

Causes of environmental degradation find their roots partly in the way in which we live and the way we run our societies. Environmental issues, therefore, are best handled with the participation of all concerned citizens at appropriate the level. Commitment and genuine involvement of civil society is a key to the effective environmental governance needed to meet major environmental challenges of the twenty-first century.

Civil society nurtures values, norms and codes of conduct for behaviour of individuals, groups and organizations in conformity with its cultural, religious and other heritages. In contrast to the regulatory frameworks developed by the government, civil society is the source of voluntary actions. Civil society holds an important role and responsibility to complement the actions of the government to address political, social and economic issues, including those related to the environment.

In some developed countries, the scale of civil society organizations is comparable to that of the public sector. In developing countries, the most visible element of civil society's growth is the growing number of non-governmental organizations that address specific problems or needs.

Civil society groups and organizations have contributed significantly to the global environmental agenda and the development of global environmental conventions. The reflection of their wide range of interests in economic and social issues onto the relevant intergovernmental fora has provided important momentum of practical approaches to sustainable development.

Civil society lies at the heart of sustainable development. At the local level, groups and organizations have been formed by local people to solve local problems through self-reliant action. Through these civil society channels, people are seeking ways to gain information, training, technology, finance, and access to markets in order to increase their incomes and improve their circumstances. Civil society movements have built up impressive records of achievement worldwide - from field activities (such as tree planting) to lobbying to the inputs to decision-making.

With the growing globalization of economic activities, communications, and other areas, entities within the civil society (such as non-profit public interest groups, religious institutions or business corporations) act and communicate beyond national boarders. Through such trans-boarder contacts, the entities of civil societies in different States can share their interests separate from the intergovernmental level, while their activities complement those of governments. Environmental issues are among the subjects on

which active trans-boarder contacts and networks have been formed, particularly through non-governmental environmental organizations.

Recognizing the important responsibility and role of civil society in the field of the environment in a "globalized world", the following issues need to be addressed.

Value, norms and codes of conducts

One of the major challenges to overcome unsustainable development patterns is the need to activate a sense of common purpose among all sectors of society. The chances of forging such a sense of purpose will depend on the willingness of all sectors to participate in genuine partnership and dialogue, while recognizing the independent roles, responsibilities and special capacities of each sector. The functions of civil society to nurture values, norms, and codes of conduct are the basis for developing such a sense of common purpose. Issues that are close to the quality of individual life, such as unsustainable patterns of consumption, will require changes in those respects within civil society.

How could civil society nurture and promote values, norms and codes of conduct contributing to environmental protection and sustainable development? What are the ways and means to facilitate them?

In the globalized world, the above discussion might involve a process of sharing values, norms and codes of conduct among civil societies in different countries worldwide. A global civil society might emerge following such a process. What would be the factors to facilitate such process? Building a knowledge base of people though education might be a key activity. In addition to traditional methods of teaching and training, better means of communications supported by recent information technology seems to be a means to facilitate this education and the media is a powerful tool to provide specific directions in this process.

Responsibilities and role

Civil society groups and organizations, such as non-governmental organizations, play a vital role shaping and implementing the participatory approach to meet environmental challenges. Their credibility lies in the responsible and constructive role they play in society. Formal and informal organizations, as well as grass-roots movements, should be recognized as partners for environmental protection and sustainable development.

Such groups and organizations, often networked in many countries, possess well-established and diverse experience, expertise and capacity in the field of environmentally sound and socially responsible sustainable development. They have an important role to identify the scientific and policy links among global environmental issues and the ways in which they influence the ability of countries to meet basic human needs.

They also play an important role to mobilize grassroots actions, including conservation of nature and natural resources, developing consumer awareness to change unsustainable patterns of consumption and production, or addressing the liability of certain industries for causing environmental pollution.

Given their important roles, what are the best ways to ensure that civil society groups and organizations play their respective roles and carry out their responsibilities towards environmental protection and sustainable development?

To complement government actions, civil society as a whole, as well as groups and organizations therein, need to make a genuine commitment to achieve the goals of environmental protection and sustainable development. While such a commitment might be voluntary, its potential contribution could be a major factor to achieve our environmental goals. If such commitment becomes accountable to the government, there could be a meaningful partnership between civil society and the government.

Support and empower civil society

To deal with major environmental challenges, civil society groups and organizations, in particular those in developing countries, need to build their knowledge base, and develop a range of new skills and competencies. With new environmental challenges emerging continuously, such self-development itself would pose a major institutional challenge to civil groups and organizations.

What is an appropriate method to formally recognize the responsibility of civil society groups and organizations and to account for their contribution towards national or international environmental policy objectives?

It is the fundamental prerequisite for the achievement of sustainable development to ensure broad and meaningful participation of civil society groups and organizations in decision-making on environmental matters. This might include, for example, their participation in environmental impact assessment procedures and decision-making processes, particularly those that affect the community where they live and work. It might require also securing for them access to information relevant to environmental and development issues and which is held by national authorities, including information on products and activities that have, or are likely to have, a significant impact on the environment, and information on environmental protection measures. Their participation might require, where appropriate, the development of a legal and institutional basis for this access.

What are desirable mechanisms to address the need of civil society groups and organizations to enhance their capabilities to deal with major environmental challenges?

The United Nations, despite the fact that it is a polity of Sates, is one of the privileged venues of relationship between the civil society and the States. In many parts of the UN, the civil society organizations are being welcomed as legitimate contributors to global governance. NGOs are now involved at levels previously unimaginable within the UN process - from the delivery of humanitarian relief to policy advice on global environmental management. International conferences have catalyzed a spectacular growth in the sheer number of organizations interested in playing a part in global decision-making.

How can governments and intergovernmental organization (such as UNEP) best support and empower civil society?

What are desirable methods to ensure inputs from civil society are made to the Governing Council?

Role of the Media

As the population size of each community grows and urbanization progresses, the media has become an instrument in civil society to build the knowledge base of people in political, economic, social, scientific and cultural matters. Newspapers, magazines, radio and television all provide essential services in this regard.

The media provides people in civil society with information on what is happening nationally and internationally, and conveys views and opinions of people in civil society through its own expression. It plays the role as a communication bridge between various stakeholders within civil society and between civil society and the government. The media also provides services to educate people and increasing provides an awareness of new and emerging issues, such as global environmental problems. Economic and social phenomena, such as unsustainable patterns of production and consumption, become known to the public through the media.

In the globalized world, what is the role and responsibility of the media to achieve the goals of environmental protection and sustainable development?

The ongoing globalization process is likely to increase the role of the media in civil society. Through worldwide coverage by the media, people can be assisted to understand differences among civil society in different parts of the world, observe common problems, and share certain values and norms across national boarders. The media is likely to accelerate a process leading towards the emergence of a global civil society.